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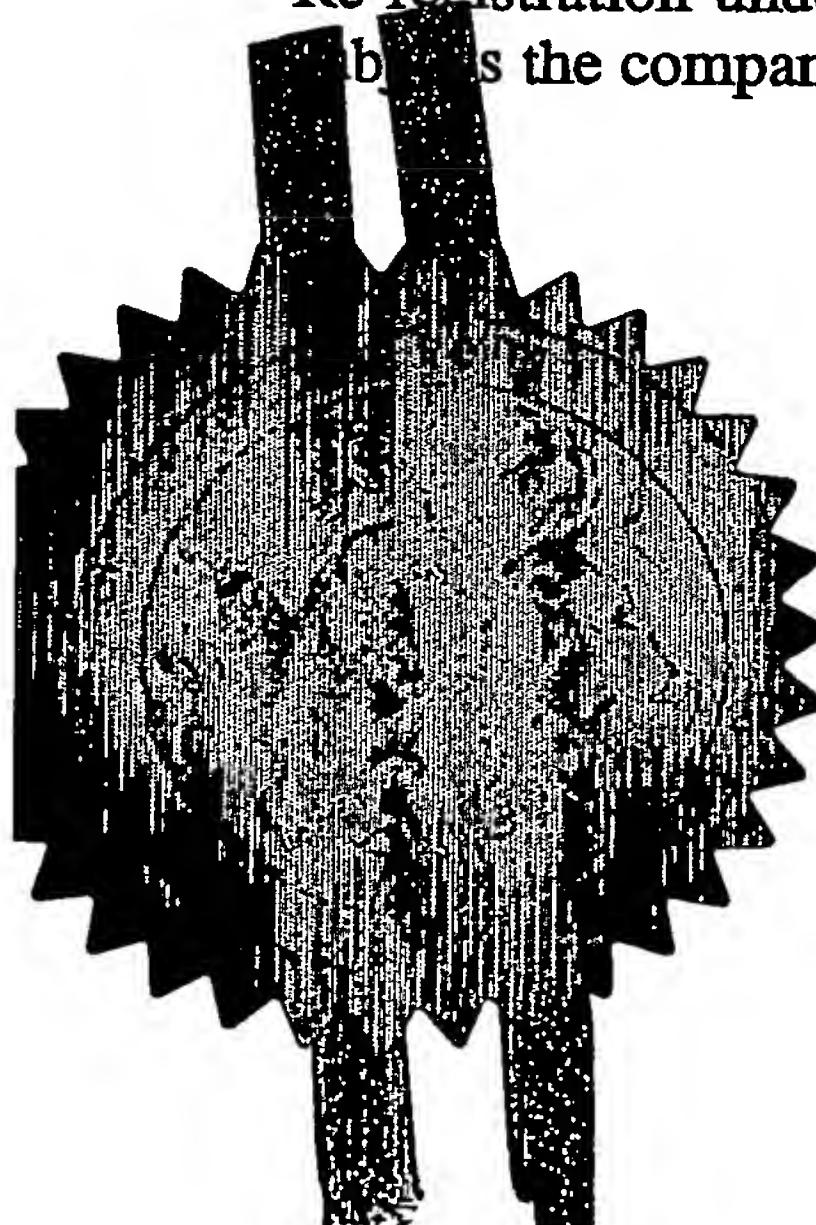
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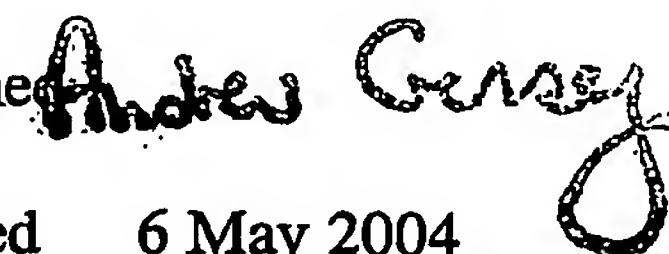
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Dated 6 May 2004

Patents Form 1/77

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1/77

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

THE PATENT OFFICE
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1. Your reference	DCS/P01853UK	15APR03 E0086535-3 D00291 P01/7700 0.00-0308653.5	
2. Patent application number <i>(The Patent Office will fill in this part)</i>	0308653.5		
3. Full name, address and postcode of the or of each applicant <i>(underline all surnames)</i>	Creative Grids (UK) Limited 71 Westfield Road Leicester LE3 6HU United Kingdom	Airmate Company Incorporated 16280 County Road D Bryan Ohio 43506 United States of America	
Patents ADP number <i>(if you know it)</i>	8611105001	8611121001	
If the applicant is a corporate body, give the country/state of its incorporation	UK	/ USA	
4. Title of the invention	Improved Ink		
5. Name of your agent <i>(if you have one)</i>	Marks & Clerk 49 Stoney Street NOTTINGHAM NG1 1LX ADP No. 00000018015		
"Address for service" in the United Kingdom to which all correspondence should be sent <i>(including the postcode)</i>	15. 9.03		
Patents ADP number <i>(if you know it)</i>			
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or each of these earlier applications and <i>(if you know it)</i> the or each application number	Country	Priority application number <i>(if you know it)</i>	Date of filing <i>(day / month / year)</i>
7. If this application is divided or otherwise derived from an earlier UK application, give the number and filing date of the earlier application	Number of earlier application		Date of filing <i>(day / month / year)</i>
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? <i>(Answer 'yes' if:</i>	Yes		
a) <i>any applicant named in part 3 is not an inventor, or</i>			
b) <i>there is an inventor who is not named as an applicant, or</i>			
c) <i>any named applicant is a corporate body.</i>			

9. Enter the number of sheets for any of the following items you are filing with this form.
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Continuation sheets of this form

Description	3
Claim(s)	1
Abstract	0
Drawing(s)	0

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Priority documents

Translation of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination
(Patents Form 10/77)

Any other documents
(please specify)

One

11.

I/We request the grant of a patent on the basis of this application.

Signature

Date

14 April 2003

12. Name and daytime telephone number of person to contact in the United Kingdom

STAGG, Diana Christine
(0116) 233 8181

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Title: Improved Ink

The present invention relates to an improved ink, in particular to an ink which can be printed onto a surface of a substrate in order to impart non-slip characteristics to that surface. The improved ink is particularly suitable for use in printing non-slip areas 5 onto articles such as rulers, in particular onto rulers known as quilting rulers especially clear acrylic quilting rulers, which are for use in measuring fabric for quilting and related needlework techniques. The present invention further relates to an improved printing process and to substrates which have been printed on using the improved ink and improved printing process.

10 Inks are known which can be used to print a pattern onto the surface of a substrate and thereby impart non-slip characteristics thereto. These inks typically comprise an ink, in particular a screen printing ink; an adhesive; a varnish, for example an acrylic varnish and a filler, in particular finely ground sand or pumice, dissolved in a solvent. When used to print a non-slip area onto a quilting ruler of the type described 15 above, the ink is printed onto the reverse side of the ruler to produce an opaque area.

Known inks of this type have the disadvantage that, in the printing process, after the liquid ink has been applied in the desired pattern to an article, the article has to be transferred to a rack and allowed to dry in the air over a period of several hours, typically overnight. In the case of articles such as rulers, in particular quilting rulers, 20 it is usually required that the rulers are additionally printed with one or more sets of markings in different colours using inks without fillers. Where the article is to be printed in this way, each set of coloured markings has to be allowed to dry, again over a period of several hours, which means that the manufacture of these articles takes an uneconomically long period of time. In addition, the printing process has to be carried 25 out as a batch process rather than a continuous process, which is less desirable.

It is a further disadvantage of the known process that, because the printing compositions used in the known process are solvent based, the solvent tends to

evaporate from the composition before the composition is applied to the substrate, so that solvent has to be added to the composition to maintain the required viscosity. It is a further disadvantage that because the composition is solvent based, it cannot be left in the screen during breaks in work because of the risk of the ink drying in the image area and damaging the screen. It is a still further disadvantage of solvent based printing compositions that the use of solvents may cause environmental problems.

It is a further disadvantage of articles, in particular rulers, printed according to the known process that, after extensive use, the non-slip character of the printed pattern degrades and may be reduced by as much as 75% of its original level due to wear and 10 to scratching. It is observed that while the printed marks are still visible, the filler has worn away or been scratched off.

It is an object of the present invention to provide an improved printing composition, an improved printing process and an improved printed article in which the above disadvantages are reduced or substantially obviated.

15 The present invention provides a printing composition which composition comprises an ink; an adhesive and a filler, characterised in that the ink is an ink which can be dried using ultra violet light and the filler is a granular filler.

In a preferred embodiment of a printing composition according to the invention, the composition further comprises a photo initiator.

20 Preferred granular fillers include glass beads, ground glass, pumice or ground plastics materials.

The present invention further provides a printing process which comprises the steps of applying to a substrate a printing composition which composition comprises an ink; an adhesive and a filler, characterised in that the ink is an ink which can be dried 25 using ultra violet light and the filler is a granular filler and drying the printed substrate under ultra violet light.

The present invention further provides an article which has been printed by the process according to the invention.

It has surprisingly been found that articles produced according to the present invention have increased resistance to wear, the non-slip properties being maintained

5 over extended periods of use. Where the article produced according to the invention is an article such as a quilting ruler which requires additional printing on the opposite side of the substrate to the side where the non-slip area has been printed, this additional printing is preferably carried out by a screen printing process using an ultraviolet printing ink.

10 In conventional printing processes using a solvent based air drying printing compositions, the drying time is typically of the order of eight hours. In contrast to this, when a printing composition according to the invention is used to print on a product, and the printed product is passed through a UV dryer, typically at a temperature not exceeding about 40° C, the product is dry within 30 seconds. The
15 dried product can then be printed with further colours in the same way if required and can then be packaged ready for shipping.

Claims

1. A printing composition which composition comprises an ink; an adhesive and a filler, characterised in that the ink is an ink which can be dried using ultra violet light and the filler is a granular filler.

5 2. A printing composition according to claim 1 wherein the composition further comprises a photo initiator.

3. A printing composition according to claim 1 or claim 2 wherein the granular filler is glass beads, ground glass, pumice or ground plastics materials.

10 4. A printing process which comprises the steps of applying to a substrate a printing composition as claimed in any of claims 1 to 3 and drying the printed substrate under ultra violet light.

5. An article which has been printed by the process according to claim 4 or using a printing composition as claimed in any of claims 1 to 3.

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